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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,559	01/28/2002	Craig A. Beam	PROA,004	4316

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EXAMINER	
BHAT, NINA NMN	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,559

Applicant(s)

BEAM, CRAIG A.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 and 2 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 02 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yao et al.

Yao et al. teach a method and apparatus for the purification of carbon dioxide from a natural gas containing gas. Yao et al. specifically teach removing water for the hydrocarbon gas mixture, separating the hydrocarbon gas mixture in vapor, light liquid and heavy liquid, distilling the separated vapor phase to remove light hydrocarbons therefrom and to product liquid carbon dioxide and then further purifying the liquid carbon dioxide if required. [Note Claim 1 and Column 7, lines 6-25]

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowell et al.

Lowell et al. teach the invention substantially as claimed. Lowell et al. teach a method for extracting water from a natural gas stream by containing the steam with a glycol to absorb the water and then regenerating the glycol for further use in extraction by heating the moist glycol in a glycol regenerator to vaporize the water contained in same as steam. Also included in the steam are VOC's or BTEX, which is then passed to a stripper column. From the overhead of the stripping column includes BTEX and condensable VOC's, which will exit accumulator (80) in either the gas phase (84) or as a condensed organic BTEX liquid at (86). The split between vapor and liquid is a function of temperature. The process eliminates the aromatics dissolved in the liquid water extracted from the three-phase drum.[Note Column 5, lines 1-42]

Although Lowell does not specifically teach heating the liquid phase to approximately 80°F, Lowell does teach using a three-phase drum or tank, which separates the liquid into a vapor stream, water and liquid hydrocarbon phase which includes BTEX.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to control the system wherein the liquid phase is heated to 80°F and then separated in a three-phase drum because Lowell specifically teaches using a process which eliminate the aromatics dissolved in the liquid water extracted from the three phase drum. Lowell et al. further teaches that most of the BTEX and condensable

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VOC's in the stripper overhead will exit accumulator 80 either in the gas phase or as the condensed organic BTEX liquid, the split between the liquid and is a function of temperature and that at around 84-90°F only 21% of the C3+ leaves with gas. Lowell et al. further teach that in order to enable maximum recovery to the condensable organics as a liquid, the temperature achieved in the condenser should be as low as possible. Therefore it would have been obvious in light of the teachings of Lowell to heat the liquid phase to approximately 80°F and separating the heated liquid in three phase high pressure tank in order to provide a liquid hydrocarbon phase which includes the most BTEX recovery as possible, and it further suggests that the temperature range of 80°F is not an arbitrary temperature to operate the three phase drum because the art recognizes that in order to maximize the recovery of condensable BTEX the temperature should be between 84-90°F and that the lower the temperature the more BTEX achieved thus rendering the invention as a whole obvious to one having ordinary skill in the art at the time the invention was made.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Landreau et al. teach a process for dehydrating a natural gas or refinery gas containing water and BTEX using a liquid desiccant glycol. Anwer et al. teach a method of concentrating a water containing glycol. Knobel teach a process for reconcentrating moist glycol. Beer et al. teach a method and apparatus for separating and recovering water and liquid aromatic hydrocarbons from a gaseous stream. Thonsgaard teach a method and apparatus for removing aromatic hydrocarbons from a gas stream prior to an amine-based gas sweetening process. Morrow teaches raw

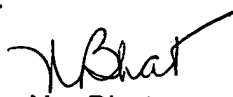
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natural gas processing system, which includes stripper to remove BTEX and VOC's from the liquid amine stream.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


N. Bhat
Primary Examiner
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